

### Background Information

The former National Zinc Company (NZC) Site is located in the city of Cherryvale, Montgomery County, Kansas, on the north side of town within a mixture of industrial/commercial and residential properties. The NZC Site was a zinc smelting facility operating from 1898 to 1976 that generated large volumes of solid waste.

The solid waste consisted of furnace cinders, broken clay cylinder retorts, building materials removed during facility repairs, and metallic slag created during the smelting process. These waste materials can be contaminated with heavy metals like lead, cadmium, arsenic, and/or zinc. As smelter waste material breaks down into smaller particles over time, the contaminants can become mobile. In addition, smelter waste has been historically used as fill material in the Cherryvale community. The photos below are examples of solid waste generated from the smelting process.



*Smelter cinder waste.*



*Broken ceramic retorts and smelting slag.*

Historical and recent investigations conducted at the NZC Site and nearby properties have found smelter related material and contaminated soil with elevated levels of lead, cadmium, arsenic, and/or zinc associated with historical zinc smelting operations. Since mid-2012, KDHE has been working in the Cherryvale community to address residential concerns which are discussed further on the next page.



*The National Zinc Company (Formerly Edgar Zinc Company) in Cherryvale, Kansas, in the early 1900's; Photograph courtesy of the Kansas State Historical Society.*

### Environmental Response Actions at the National Zinc Company Site

In 1976 an investigation of the NZC Site by the Kansas Department of Health and Environment (KDHE) identified sludge and liquid waste contaminated with heavy metals in large settling ponds used to contain runoff from slag and roasted ore. NZC conducted limited response actions in the late 1970's through the early 1980's, treating and dewatering approximately 95 million gallons of liquid from large settling ponds, removing ore and sludge from the former facility, and encapsulating approximately 300 tons of remaining ore and sludge in a former lagoon area on-site. A Restrictive Covenant established in 1983 restricts the future use of the smelter property. The City of Cherryvale acquired the property in 1989.

KDHE inspected the NZC Site in 1995 and determined the prior encapsulation efforts had failed and significant concentrations of heavy metals were present in sludge, soil, and sediment. KDHE completed a series of assessments from 1999 through 2002 at the Site, and on adjacent properties. The assessments identified residential and non-residential properties contaminated with elevated levels of lead, cadmium, arsenic, and/or zinc.

Based on these findings, KDHE referred the areas adjacent to the NZC Site (Cherryvale Residential Yards Site and the Cherryvale Rodeo Grounds Site) to the U.S. Environmental Protection Agency (EPA) to complete a time-critical removal action of impacted soils (discussed on the next page).

In 2003 KDHE entered into a Consent Order with United States Steel Corporation and Citigroup Global Market Holdings, Inc., (formerly Salomon Smith Barney Holdings, Inc.) (Respondents). The Respondents further investigated conditions at the NZC Site and designed corrective measures from 2003-2007. In 2007, after a public comment period, KDHE issued a Corrective Action Decision (CAD) which outlined the preferred remedial actions, and signed an amended Consent Order with Respondents for Removal Action.

Between June and November 2007, the Respondents excavated, consolidated, and capped sediment and soils on the former NZC property that were impacted with heavy metals above non-residential standards. They also removed impacted sediments from a nearby unnamed creek and Drum Creek, and installed a sediment catchment basin in Drum Creek.



*Site area during (above) and after (below) the 2007 removal action, facing northwest.*



In 2010 KDHE accepted the Removal Action Report into the Administrative Record requiring additional work (soil removal and institutional controls) to complete the removal action. This work is expected to be completed within the next few years.

### Residential Removal Actions

EPA Time-Critical Removal activities at properties near the NZC Site began in November 2001 and were completed in May 2002. The Rodeo Grounds property was excavated to a minimum depth of 12 inches, and a total of 35 residential properties were excavated to a depth of 12 inches deep. If lead concentrations in the soil at 12 inches (or deeper) exceeded KDHE's Tier 2 risk-based standard for residential areas of 400 milligrams per kilogram (mg/kg), an orange plastic barrier guard was placed between the underlying impacted soils and clean backfill soil.



*2001 excavation of contaminated soil from a yard.*

The EPA Removal Action Summary Report indicates that the excavation reduced lead concentrations to 400 mg/kg or below at the Rodeo Grounds property, and that barrier guard was used on 20 residential properties. Following excavation, the residential properties were backfilled with clean soil and hydroseeded with a grass mixture. Backfill was only used in isolated areas at the Rodeo Grounds. The EPA Removal Action excavated 76,000 cubic yards of impacted soil, and transported it to the NZC Site property for consolidation into a soil repository which was capped with clean soil and vegetated.

In May and June 2012, under KDHE oversight, the Respondents removed contaminated soil from eight additional residential properties south of the NZC Site that were not addressed during the 2001-2002 EPA Removal Action. Similar to the EPA Removal Action, the properties were excavated to at least 12 inches, and if at 12 inches (or deeper), lead or arsenic concentrations exceeded the residential standard, an orange plastic barrier guard was placed between the underlying impacted soils and clean backfill soil. Barrier guard was used at all eight properties, then backfilled with clean soil and re-vegetated with sod.



*Backfilling of clean soil over the barrier guard in a residential yard in 2012.*

Approximately 2,800 cubic yards of impacted soil was removed and transported to the NZC Site where it is being temporarily stockpiled on an existing soil repository and covered with plastic sheeting to contain the soils until a permanent location is selected and the soils are permanently capped. KDHE approved the 2012 Residential Removal Action Report in February 2013.

### Current Investigation and Next Steps

Since mid-2012 KDHE has been working with the Respondents to address additional residential concerns in the Cherryvale community, and in May 2013 the Consent Order was amended to include a Removal Site Evaluation (RSE) and Removal Action Design (RAD) to address more widespread soil contamination within the City of Cherryvale.

The Respondents are conducting the RSE in phases and implemented a Phase 1 RSE Work Plan in August 2013. KDHE approved the Phase 1 RSE Report in April 2014. Phase 1 results provide the basis for additional testing to be conducted during Phase 2 RSE activities to delineate the extent of the smelter related contamination in the City of Cherryvale. Implementation of Phase 2 RSE activities began in August 2014 and will continue into 2015.

Once RSE activities have been completed, Respondents will prepare a Phase 2 RSE Report describing the assessment findings and potential remedial alternatives. After reviewing this report, KDHE will prepare and issue a Draft CAD, and will make the document available for public comment. The CAD will be finalized after considering any public comments received. Following KDHE's issuance of the Final CAD, the Respondents will prepare a RAD Plan for KDHE review and approval. Upon KDHE approval, KDHE and the Respondents will enter into negotiations for an Amendment to the Consent Order to implement the RAD Plan.

### KDHE Community Involvement

KDHE has prepared a Community Involvement Plan (CIP) to outline the Agency's community outreach program. KDHE is committed to promoting two-way communication between the Agency and the community, and wants to make sure the community's concerns and information needs are considered as project activities progress. Ongoing input and involvement by citizens in the Cherryvale community is essential to ensure that contamination is addressed in a way that protects people and the environment—now and in the future.

- KDHE has established a local information repository at the Cherryvale City Hall Office, 123 W. Main St., Cherryvale, Kansas, where the public can go to read the CIP, official Site documents, and other information about the Site.
- KDHE has developed a webpage dedicated to providing current information regarding the Site, which can be viewed at:

[http://www.kdheks.gov/remedial/scu/national\\_zinc.html](http://www.kdheks.gov/remedial/scu/national_zinc.html)

Please contact KDHE Project Manager Holly Burke if you have any questions or concerns.

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